DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-005398
Date Inspected: 05-Feb-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 645
OSM Departure Time: 1845
Location: Shanghai, China

CWI Name:	See Below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Fabrication

Summary of Items Observed:
CWI: Mr. Sun Wei

On this date CALTRANS OSM Quality Assurance (QA) Inspector Mr. Paul Dawson arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

OBG Bay 3

This QA Inspector performed random ultrasonic (UT) inspections of OBG floor beam welds FB019-001-078, FB019-007-081, FB028-008-078, FB028-008-080, FB024006-078, FB024-006-079, FB024-006-081, FB020-07-078, FB078-007-079. These welds are listed on ZPMC Notification of Witness Inspection document 001889. The QA Inspector observed the welds that were ultrasonically inspected by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on this inspection see the TL6027 Ultrasonic Test Report.

OBG Bay 2

This QA Inspector performed random ultrasonic (UT) inspections of tower diaphragm welds NSD1-SA363-005A and NSD1-SA363-011A. The QA Inspector observed the welds that were ultrasonically inspected by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on this inspection see

the TL6027 Ultrasonic Test Report.

OBG Bay 9

This QA Inspector observed ZPMC welder Mr. Xiao Bian bin stencil 59440 is using shielded metal arc welding procedure WPS-B-T-2342-U5B-(Urib) to tack weld OBG closed ribs to deck plate DP275-001. Prior to welding the QA Inspector observed the base material was preheated using a torch and one worker was verifying zero gap in the weld groove between the closed rib and the baseplate prior to making each tack weld. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

The QA Inspector monitored welding of closed rib of deck plate DP219-001 using gantry #1. The QA Inspector observed four ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-4 using the gas metal arc welding process for the root pass of four partial penetration groove welds on closed rib welds at the same time. ZPMC has multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. ZPMC QC and ABF representatives were both monitoring this welding. The QA Inspector observed QC had documented a welding travel speed of 533 mm per minute for the root passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Ms. Zhang Li Ping, stencil 201840 completed the root pass of weld #3 with a welding current of approximately 360 amps and 31.0 volts. Welder Mr. Zhao Cheng Shuang, stencil 59400 completed the root pass of weld #4 with a welding current of approximately 350 amps and 31.5 volts. Welder Ms. Wang Xiao Rong, stencil 59445 completed the root pass of weld #7 with a welding current of approximately 370 amps and 31.1 volts. Welder Mr. Tiang Shuang Chen, stencil 201788 completed the root pass of weld #8 with a welding current of approximately 360 amps and 31.4 volts. Items observed by this QA Inspector appear to comply with project specifications.

This QA Inspector observed ZPMC welder Mr. Xing Jie, stencil 59378 is using flux cored welding procedure WPS-345-FCAW-1G(1F)-Repair-1 to make repairs to OBG deck plate DP575-001 weld #13R1. Prior to welding the QA Inspector observed the base material had been preheated using electrical heater elements. The QA Inspector observed a Quality Control Inspector measuring Mr. Jie welding with a current of 310 amps and 29.5 volts. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

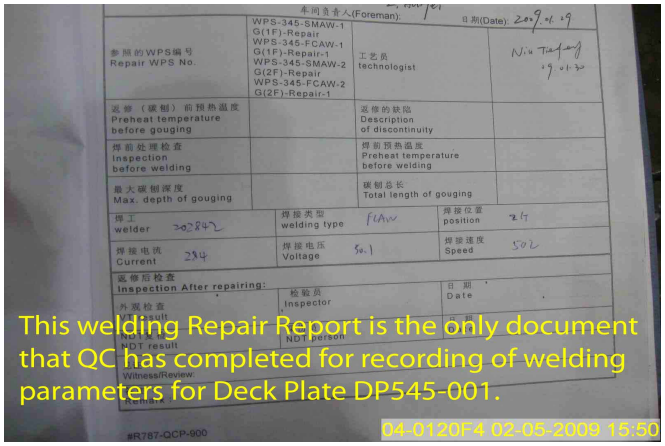
The QA Inspector asked ABF CWI Mr. Sun Wei where QC was recording the welders welding current and voltages that had measured earlier in the day during the repairs of deck plate stiffener welds. Mr. Wei said ZPMC only records the average welding current and voltages on the weld repair records and QC is not required to record welding parameters anywhere else. The QA Inspector informed Mr. Wei that the Special Provisions require QC to record this welder information and Mr. Wei said he does not agree that the Special Provisions require recornding of this information.

The QA Inspector issued an incident report stating the following problem:

Description of Incident:

ZPMC has performed stiffer weld repairs on Deck Plates DP545-001, DP580-001 and other deck plates without ZPMC Quality Control personnel documenting welding parameters on a daily basis as required by the Special Provisions. Weld Repair Report B-WR2117 for DP545-001 lists the average welding parameters for the welding

current, voltage and travel speed but no other documents appear to have been generated to record any specific welding parameters. Below are photographs showing Weld Repair Report B-WR2117 which contains the average welding parameters that ZPMC QC had recorded.



Summary of Conversations:

See above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Clifford,William	QA Reviewer